

RFI ENCLOSURES LAUNCH CONTROL CENTER FIRING ROOM NATIONAL AERONAUTICS AND SPACE ADMINISTRATION KENNEDY SPACE CENTER, FLORIDA
DESIGN AND CONSTRUCTION SUPERVISION: CANAVERAL DISTRICT, U.S. ARMY CORPS OF ENGINEERS



Zero Space Series • RFI Shielded Vertical, Slope Front
and Low Silhouette Aluminum Electronic Enclosures

Zero Space Series Space Saving, Slim Silhouette, RFI Shielded Aluminum Enclosures

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Zero Space Series Enclosures were designed by Western Devices, Inc., A Zero subsidiary, and manufactured under contract number DA-08-176-ENG(NASA)-126 for Launch Complex 39, Merritt Island, Cape Kennedy. To date more than 5,000 cabinets have been installed for the Saturn V Apollo Moon Launch facility and supplied to other NASA contractors for use at the Cape and at Marshall Space Flight Center.

The narrow width of the Zero Space Series permits greater space utilization, allowing up to 10% more cabinets to be installed in a given area without sacrifice to the electronics. The RFI integrity (optional) permits use of RFI critical gear under extreme conditions and prevents interference with other, delicate electronics.

The light weight and ruggedness of the welded aluminum construction makes this series excellent for air transportable shelters, shipboard use, etc. Weight of Zero Space Series Enclosures averages approximately half that of comparable steel enclosures.

Zero Space Series Enclosures are thoroughly tested to meet NASA and Military Specifications and are manufactured under rigid MPC-200-3 Quality Control Procedures. Complete tooling and parts inventories permit economical production with short lead times on any size order.

Military and NASA Specifications

The following design, manufacturing and test specifications are met or exceeded by Zero Space Series Cabinets and Consoles.

VERTICAL CABINETS

KSFC-64-KN-F-260
MSFC-40MO8120 (Type I)

SLOPE FRONT CABINETS

KSFC-64-KN-F-261
MSFC-40MO1816 (Type II)

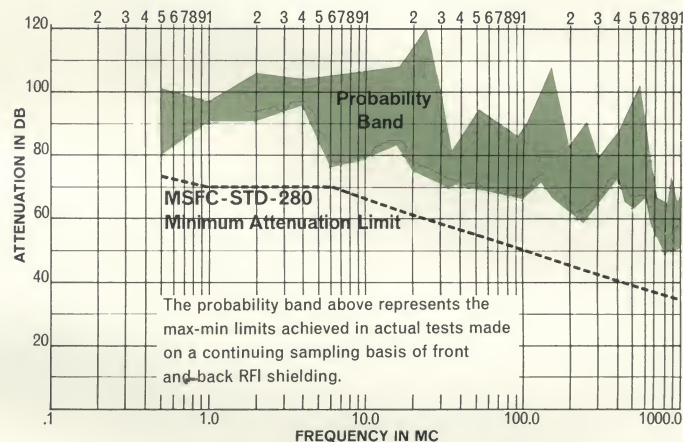
LOW SILHOUETTE CABINETS

KSFC-64-KN-F-262
MSFC-40MO2336 (Type III)

MSFC-SPEC-331 (Design)
KSC-E-153F (Design)
MSFC-280 (RFI Test)
MIL-E-4970 (Test)
MIL-I-26600 (RFI Control)
MIL-W-6858 (Welding)
MIL-I-8500 (Interchangeability)
MIL-STD-171B(MR) (Finishing)
KSC-E-153F-QTP (Vibration Test)

**MANUFACTURED UNDER MPC-200-3
QUALITY CONTROL PROCEDURES**

RFI Attenuation Exceeds NASA Requirements



SPECIFICATIONS

Material:

Frame — Aluminum extrusions 6063-T6
Skin Parts — Aluminum 5052-H32

Finish:

Aluminum — chemical film (iridite) 7.3 Class 3 plus paint 21.9 of MIL-STD-171B(MR). Gray #26251 of FED-STD-595. Surfaces mating with shielding to be free of paint. Cabinet interiors not painted.

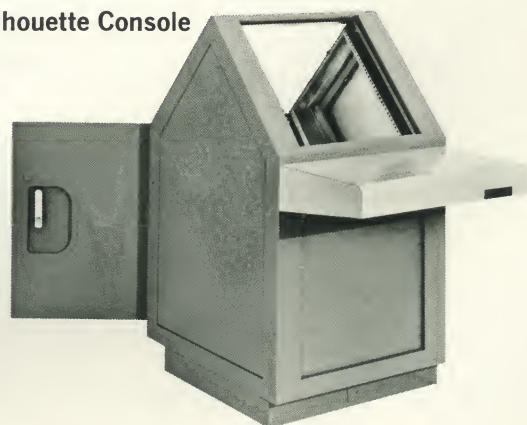
A Complete Line of Vertical, Slope Front and Low Silhouette Enclosures and Accessories



Vertical Cabinet

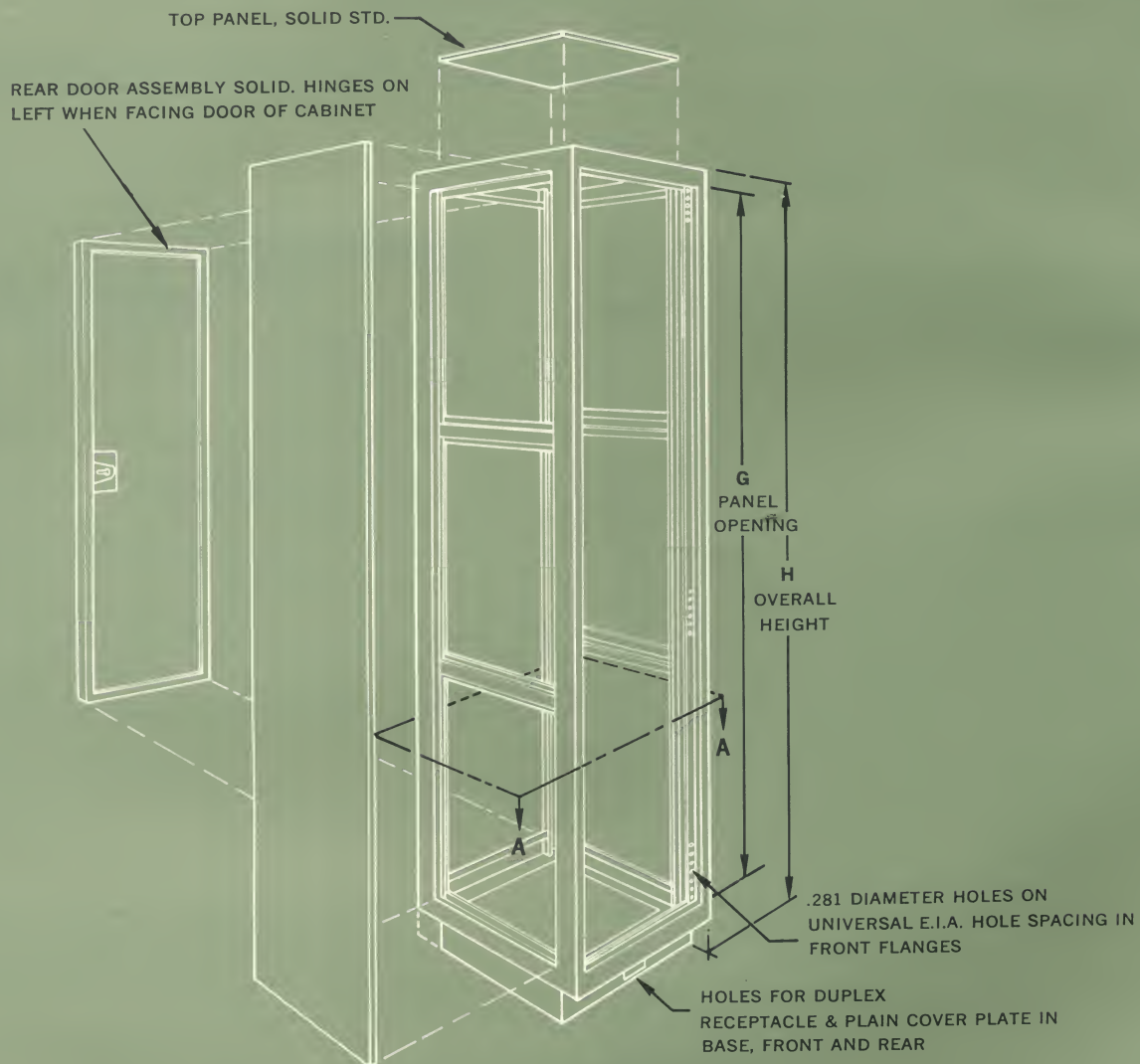


Slope Front Console

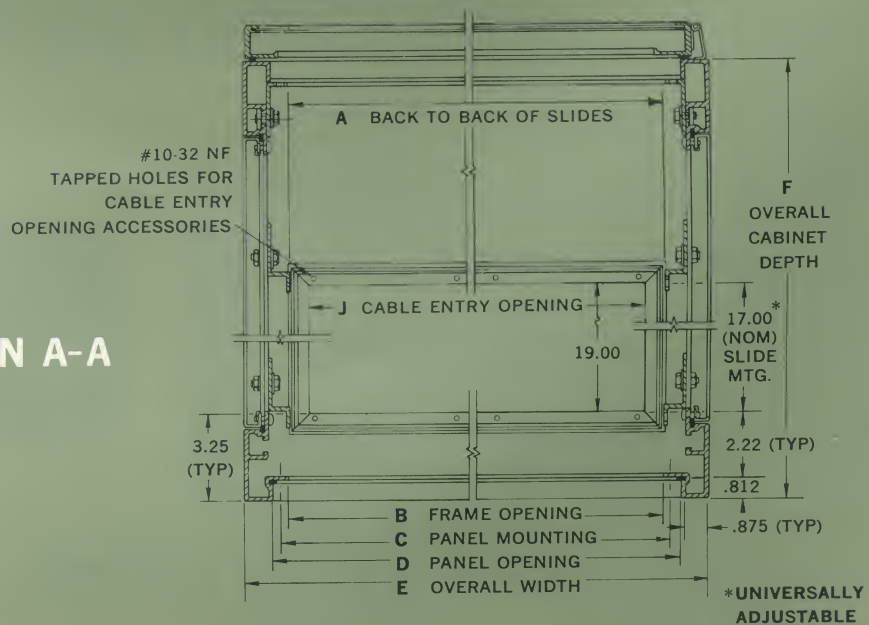


Low Silhouette Console

Space Series Vertical Cabinet



SECTION A-A



SIZE CODE DASH NO.	PANEL WIDTH	DIMENSIONS								
		A	B	C	D	E±.046	F±.046	G	H±.046	J
01	19.00	17.69	17.81	18.31	19.06	21.06	25.50	78.88	86.25	16.25
02							30.56	78.88	86.25	
03							25.50	77.13	84.50	
04							30.56	77.13	84.50	
05							25.50	70.13	77.50	
06							30.56	70.13	77.50	
07							25.50	52.63	60.00	
08	19.00	17.69	17.81	18.31	19.06	21.06	30.56	52.63	60.00	16.25
09	24.00	22.69	22.81	23.31	24.06	26.06	25.50	78.88	86.25	21.25
10							30.56	78.88	86.25	
11							25.50	77.13	84.50	
12							30.56	77.13	84.50	
13							25.50	70.13	77.50	
14							30.56	70.13	77.50	
15							25.50	52.63	60.00	
16	24.00	22.69	22.81	23.31	24.06		30.56	52.63	60.00	
17	19.00	17.69	17.81	18.31	19.06		25.50	78.88	86.25	
18							30.56	78.88	86.25	
19							25.50	77.13	84.50	
20							30.56	77.13	84.50	
21							25.50	70.13	77.50	
22							30.56	70.13	77.50	
23							25.50	52.63	60.00	
24	19.00	17.69	17.81	18.31	19.06	26.06	30.56	52.63	60.00	21.25

FRONT DOOR OPTION

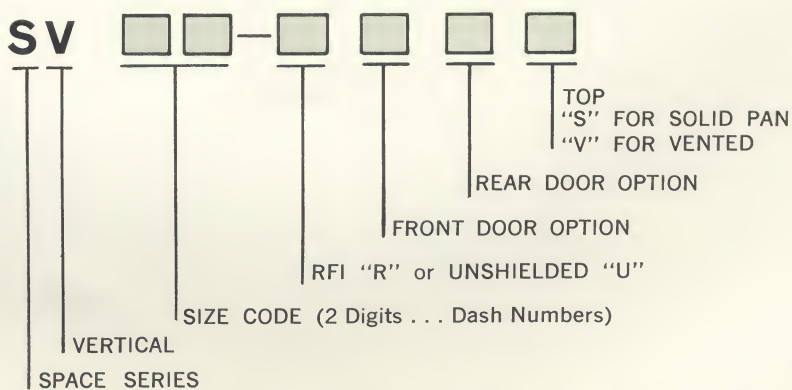
- 1 — No Front Door
- 2 — Front Door Left, Solid
- 3 — Front Door Left, Vented Top and Bottom
- 4 — Front Door Right, Solid
- 5 — Front Door Right, Vented Top and Bottom
- 6 — Front Door Left, Plexi-Glass
- 7 — Front Door Right, Plexi-Glass

REAR DOOR OPTION

- 1 — No Rear Door
- 2 — Rear Door Left, Solid
- 3 — Rear Door Left, Vented Top and Bottom
- 4 — Rear Door Right, Solid
- 5 — Rear Door Right, Vented Top and Bottom
- 6 — Rear Door Left, Plexi-Glass
- 7 — Rear Door Right, Plexi-Glass

HINGING OF DOOR ESTABLISHED
BY FACING DOOR INVOLVED

ORDERING CODE

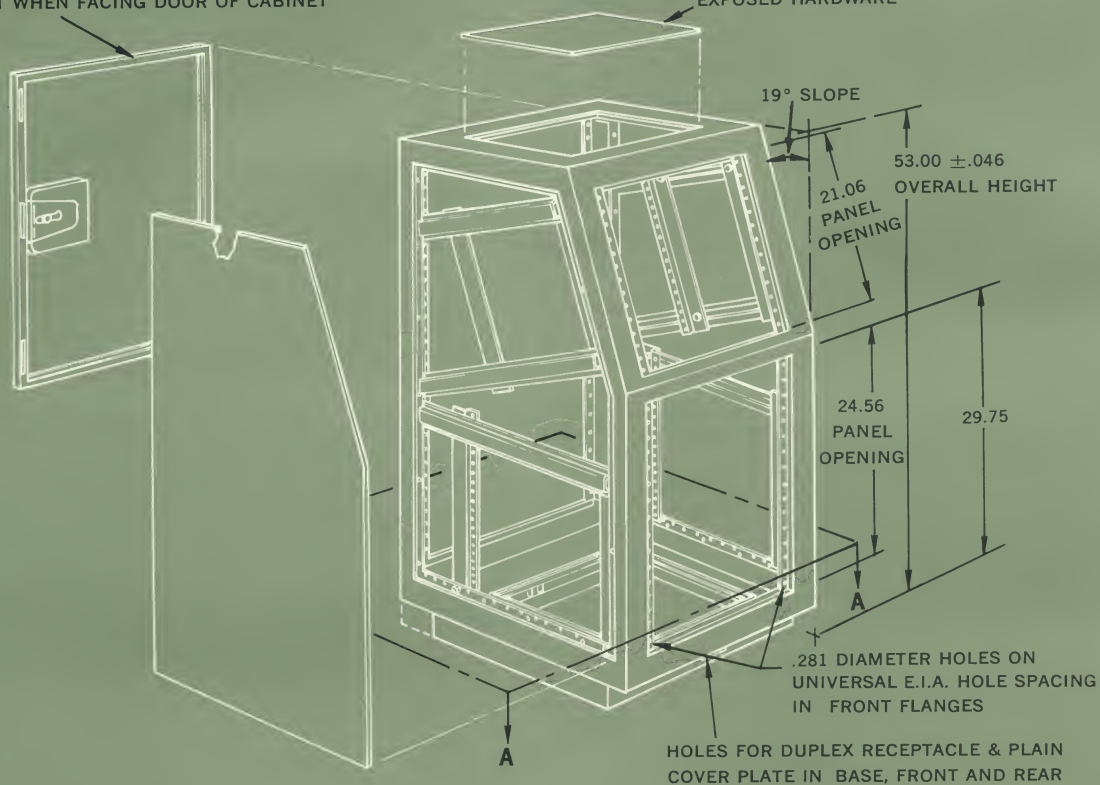


When unshielded cabinet is specified, shielding material is replaced with suitable gasket material as required, to obtain similar parts fit. Accessories ordered with cabinet are installed at factory when location is specified. Cases ordered unshielded can be retrofitted with RFI gasketing in the field.

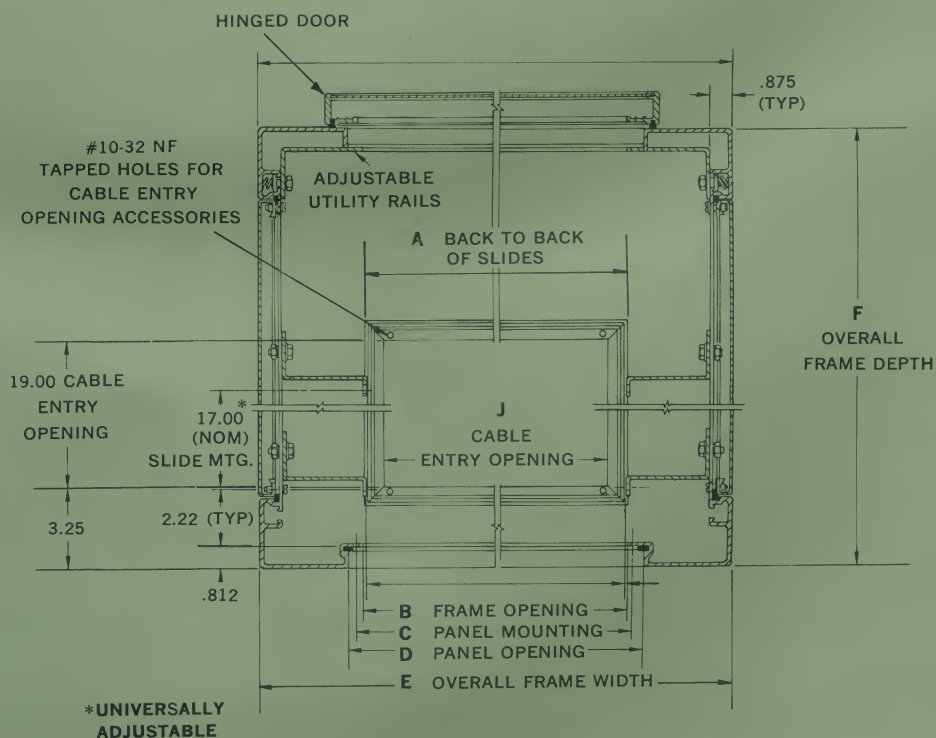
Space Series Slope Front Console

REAR DOOR ASSEMBLY SOLID. HINGES ON LEFT WHEN FACING DOOR OF CABINET

SOLID TOP PANEL STD. INSTALLS WITH NO EXPOSED HARDWARE



SECTION A-A



SIZE CODE DASH NO.	PANEL WIDTH	DIMENSIONS						
		A	B	C	D	E±.046	F±.046	J
01	19.00	17.687	17.812	18.312	19.062	26.06	25.500	16.25
02	19.00	17.687	17.812	18.312	19.062	26.06	30.562	16.25
03	24.00	22.687	22.812	23.312	24.062	26.06	25.500	21.25
04	24.00	22.687	22.812	23.312	24.062	26.06	30.562	21.25
05	19.00	17.687	17.812	18.312	19.062	21.06	25.500	16.25
06	19.00	17.687	17.812	18.312	19.062	21.06	30.562	16.25

FRONT DOOR OPTION

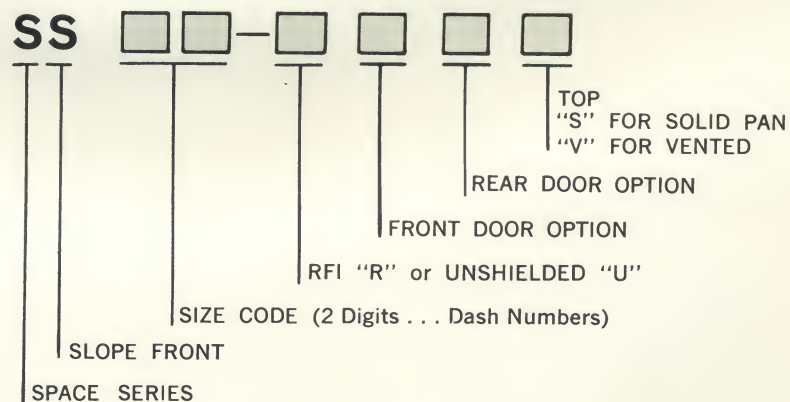
- 1 — No Front Door
- 2 — Front Door Left, Solid
- 3 — Front Door Left, Vented Top and Bottom
- 4 — Front Door Right, Solid
- 5 — Front Door Right, Vented Top and Bottom
- 6 — Front Door Left, Plexi-Glass
- 7 — Front Door Right, Plexi-Glass

REAR DOOR OPTION

- 1 — No Rear Door
- 2 — Rear Door Left, Solid
- 3 — Rear Door Left, Vented Top and Bottom
- 4 — Rear Door Right, Solid
- 5 — Rear Door Right, Vented Top and Bottom
- 6 — Rear Door Left, Plexi-Glass
- 7 — Rear Door Right, Plexi-Glass

HINGING OF DOOR ESTABLISHED
BY FACING DOOR INVOLVED

ORDERING CODE



When unshielded cabinet is specified, shielding material is replaced with suitable gasket material as required, to obtain similar parts fit. Accessories ordered with cabinet are installed at factory when location is specified. Cases ordered unshielded can be retrofitted with RFI gasketing in the field.

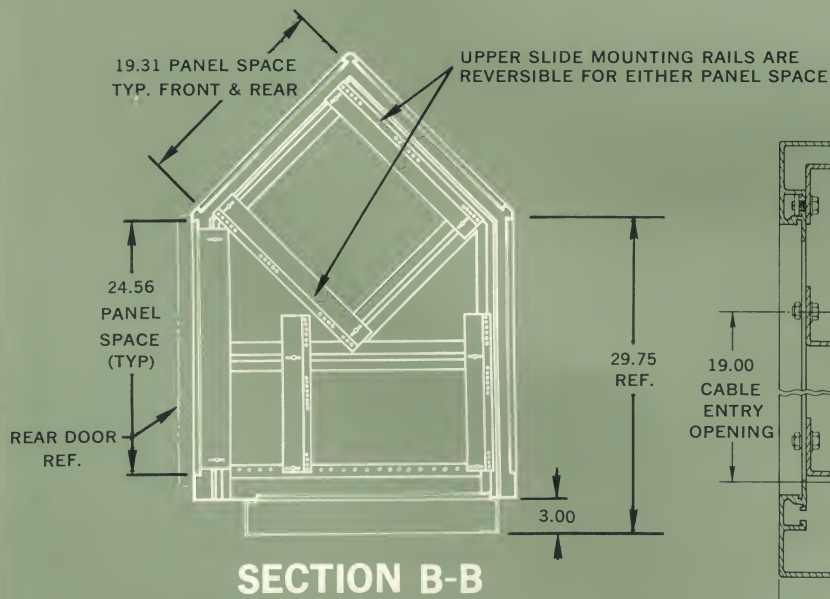
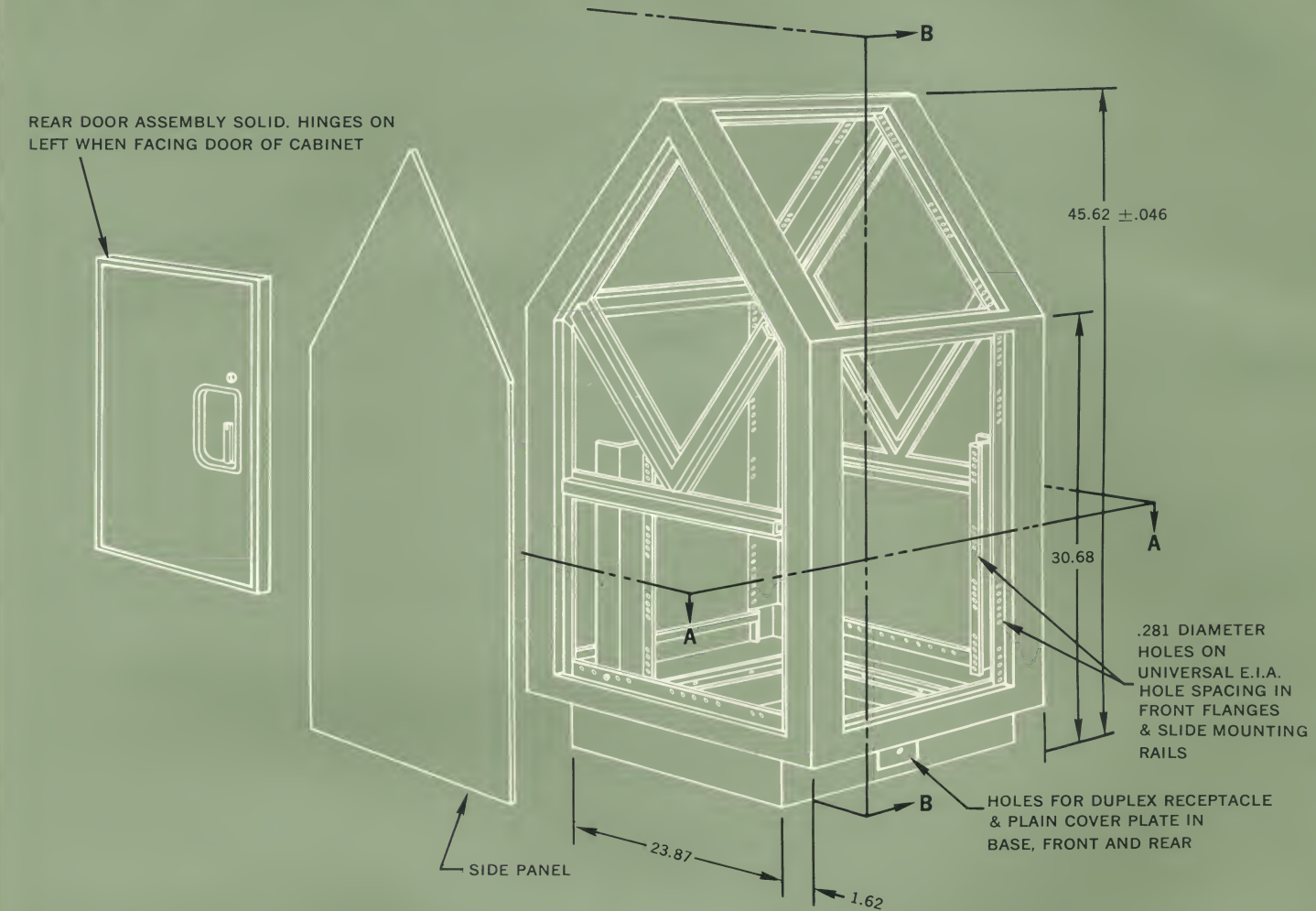
Ordering Example

SS 04-R12S

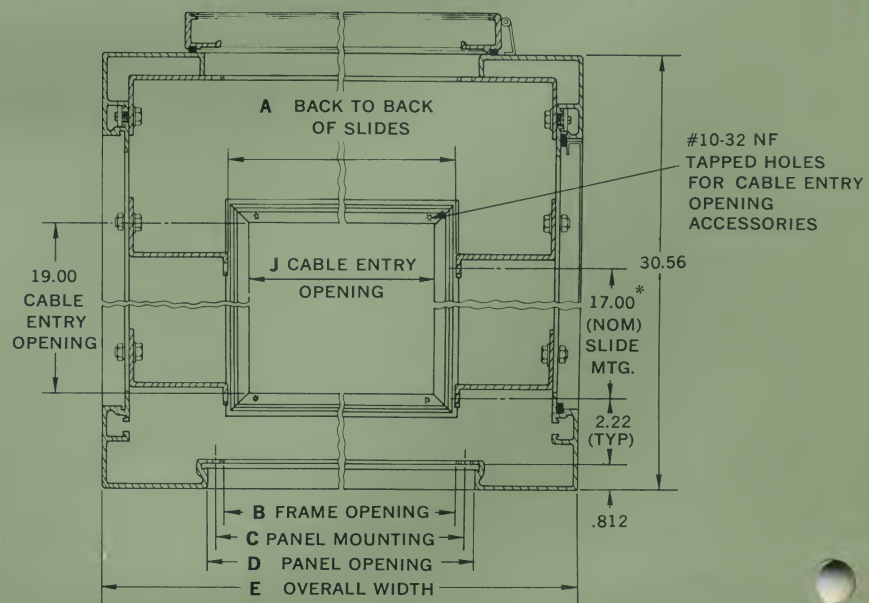
A Slope Front Console with 24.00 inch panel width — 53.00 inches high x 30.56 inches deep x 26.06 inches wide; RFI shielded; no front door; rear door solid, hinged left; solid pan top.

Space Series Low Silhouette Console

REAR DOOR ASSEMBLY SOLID. HINGES ON LEFT WHEN FACING DOOR OF CABINET



SECTION B-B



SECTION A-A

*UNIVERSALLY ADJUSTABLE

SIZE CODE DASH NO.	PANEL WIDTH	DIMENSIONS					
		A	B	C	D	E ±.046	J
01	19.00	17.687	17.812	18.312	19.062	26.06	16.25
02	24.00	22.687	22.812	23.312	24.062	26.06	21.25
03	19.00	17.687	17.812	18.312	19.062	21.06	16.25

FRONT DOOR OPTION

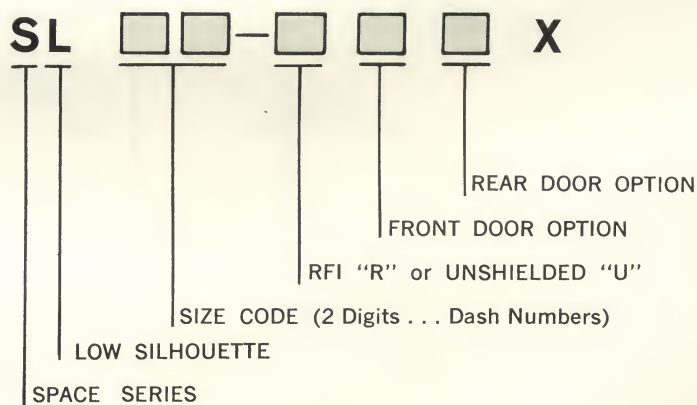
- 1 — No Front Door
- 2 — Front Door Left, Solid
- 3 — Front Door Left, Vented Top and Bottom
- 4 — Front Door Right, Solid
- 5 — Front Door Right, Vented Top and Bottom
- 6 — Front Door Left, Plexi-Glass
- 7 — Front Door Right, Plexi-Glass

REAR DOOR OPTION

- 1 — No Rear Door
- 2 — Rear Door Left, Solid
- 3 — Rear Door Left, Vented Top and Bottom
- 4 — Rear Door Right, Solid
- 5 — Rear Door Right, Vented Top and Bottom
- 6 — Rear Door Left, Plexi-Glass
- 7 — Rear Door Right, Plexi-Glass

HINGING OF DOOR ESTABLISHED
BY FACING DOOR INVOLVED

ORDERING CODE



When unshielded cabinet is specified, shielding material is replaced with suitable gasket material as required, to obtain similar parts fit. Accessories ordered with cabinet are installed at factory when location is specified. Cases ordered unshielded can be retrofitted with RFI gasketing in the field.

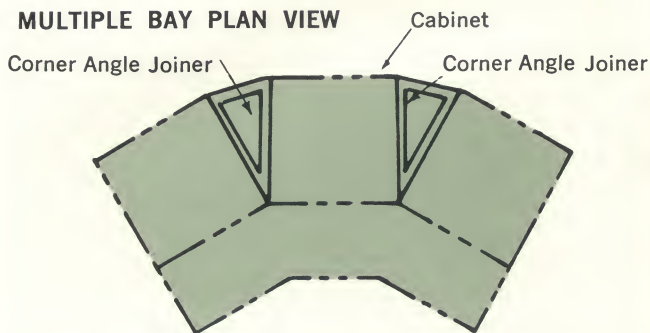
Ordering Example

SL 01-R12X

A Low Silhouette Console with 19.00 inch panel width — 45.62 inches high x 30.56 inches deep x 26.06 inches wide; RFI shielded; no front door; rear door solid, hinged left; top open.

Space Series Accessories for RFI Shielded Enclosures

MULTIPLE BAY PLAN VIEW



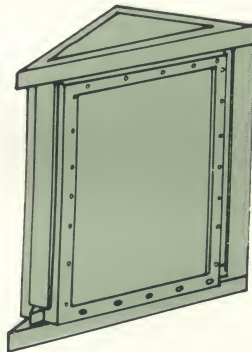
Corner angle joiner unit (mounted between cabinets to form angles for multiple bay units). Available in 30° and 45°.

ANGLE JOINER UNIT

Vertical Cabinet
D1757-181

Slope Front D1757-180

Available for Vertical and Slope Front cabinets only, in conjunction with baffled joiners.



JOINER FRAME

Vertical Cabinet D1757-13

Slope Front D1757-12

Low Silhouette D1757-11

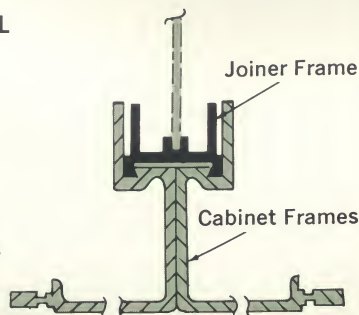
Available for Vertical, Slope Front and Low Silhouette units. Specify Open or Baffled for RFI separation when ordering.

(Mounts between cabinets to form multiple bay units)



JOINER FRAME—DETAIL

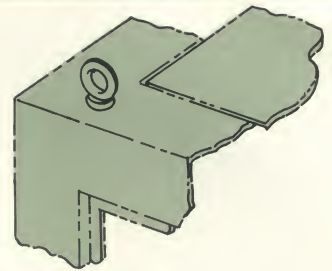
Cabinets joined by replacing side panels with one joiner frame. Order joiners separately.



LIFTING EYES

D1757-584

Available on vertical and slope front cabinets only.
1" ID x 1-21/32" OD
(Typ. 4 corners)



AIR DUCT D1757-130

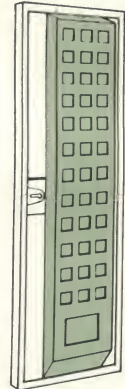
Air distribution panel to be used with blower or air conditioning units.

Snap-in closures for 2/3 of openings furnished.

Additional Enclosures available.

Snap-in ZSP 9-031

Scoop ZSP 9-030

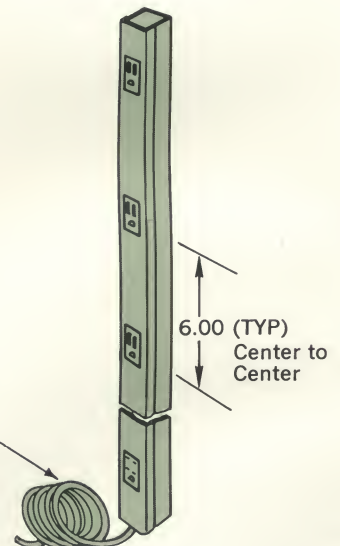


PLUG-IN STRIP

D1757-201

125 Volt AC, 15 amp grounded strip. Length to suit cabinet

36" — 2 conductor
12 AWG shielded wire per MIL-W5086A & MIL-C-707B, Class 4, Type II.



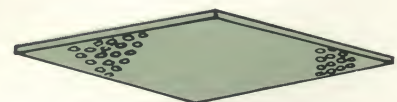
VENTED TOP PANEL

19" Panel Width

D1757-102-15

24" Panel Width

D1757-102-17



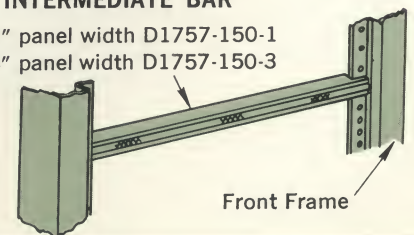
Perforated to replace solid top panel. Available for vertical and slope front panels only. (Also fits cable entry opening.)

PANEL HORIZONTAL INTERMEDIATE BAR

19" panel width D1757-150-1

24" panel width D1757-150-3

Attaches to front frame of cabinet.
RFI shielded.

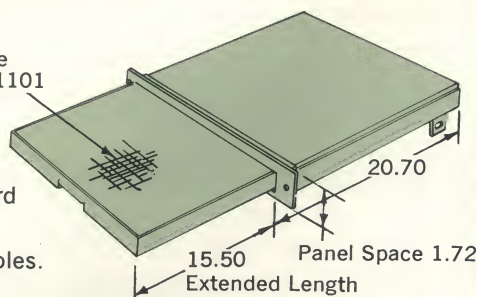


RETRACTABLE WRITING SURFACE — RFI TIGHT

D1757-192

"Textolite" Surface
Gray Irish Linen #1101

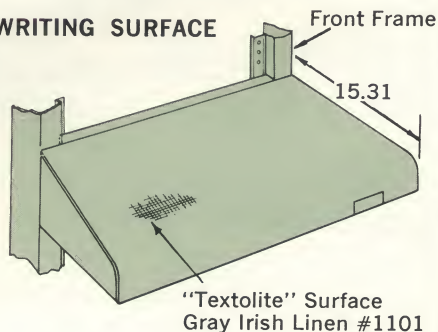
Mounts to standard
Universal E.I.A.
panel mounting holes.



PANEL MOUNTED WRITING SURFACE

D1757-160

Mounts to front
frame of Vertical
cabinet. Also
available
for multiple bay
and angled
multiple bay units.

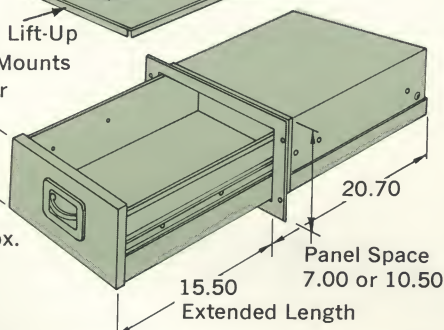


LIFT-UP WRITING SURFACE D1757-86

Hinge
14.00
"Textolite" Surface
Gray Irish Linen
#1101

Drawer Attached Lift-Up
Writing Surface Mounts
To Top of Drawer

Specify
Drawer Depth
6" or 9½" Approx.



PANEL MOUNTED UTILITY DRAWER — RFI TIGHT

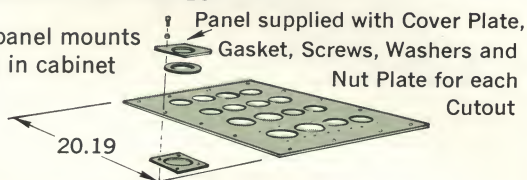
D1757-191

Mounts to standard Universal E.I.A. mounting holes.

CABLE ENTRY PANEL 19" Panel Width D1757-102-11

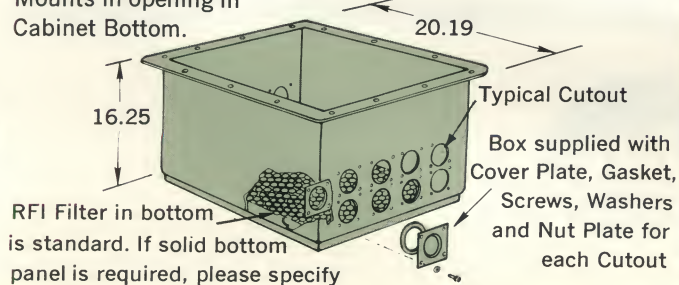
24" Panel Width D1757-102-13

Cable entry panel mounts
over opening in cabinet
bottom.



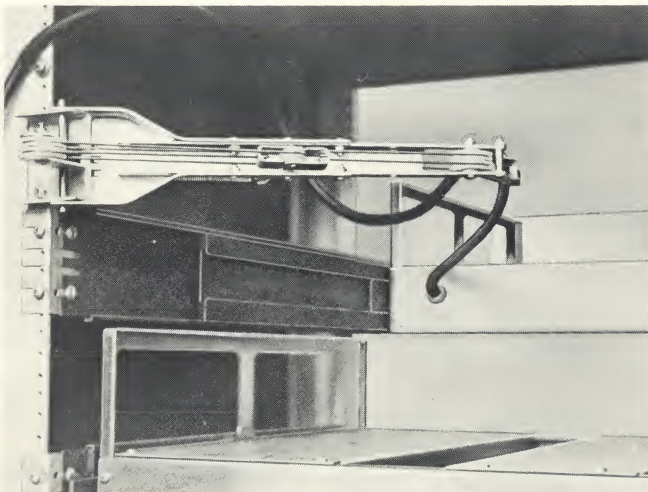
CABLE ENTRY BOX D1757-110

Mounts in opening in
Cabinet Bottom.



CABLE RETRACTOR

CR-200



Eliminate sagging cable hazards that damage equipment in lower chassis each time an upper chassis is serviced. Constant tension, adjustable and proper suspension. Mounts on rear support rail on standard E.I.A. hole spacing. Conforms to NASA Drawing 1015800.

SUPPRESSION LINE FILTERS

Available in 125 volt AC, 15 amp and 20 amp capacity. RFI shielded for maximum noise suppression. (Fits cutout in cable entry accessories.)

DOLLIES

Available for single cabinets and multiple bay units. Configuration dependent on applicable use and mobility. Heavy duty construction with availability of optional features are offered.

BLOWERS

Zero designed blowers are manufactured under rigid quality control using components applicable to military specifications for cooling electronic equipment during operation. Available with RFI attenuating filter and grille assembly, all blowers provide a minimum of 400 CFM. Refer to Zero Blower Catalog R65 for details.

SPECIFICATIONS

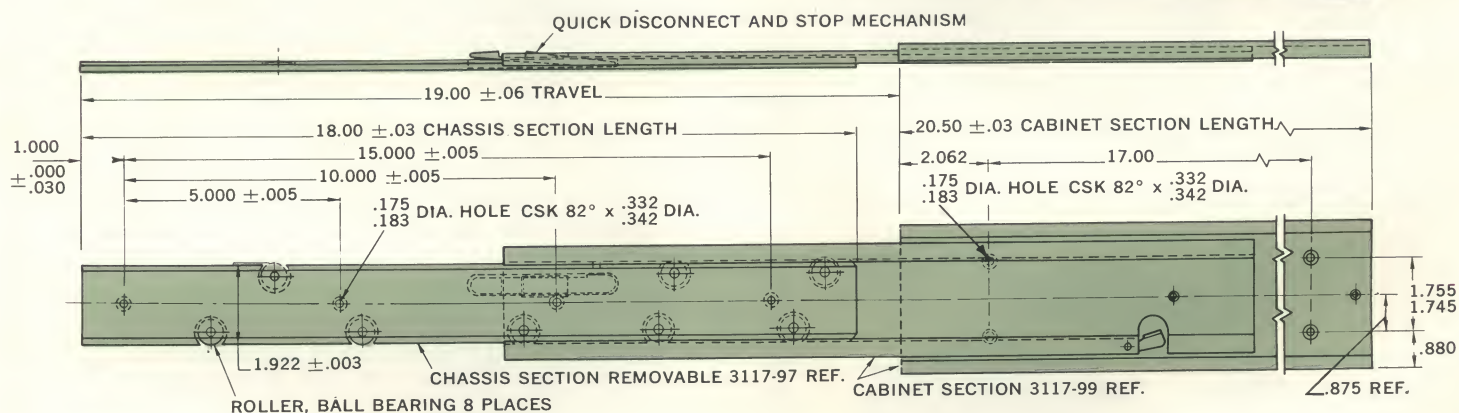
Material: Extrusions — aluminum alloy 6063-T6
Sheet metal — aluminum alloy 5052-H32

Finish: Aluminum — chemical film (iridite) 7.3
Class 3 plus paint 21.9 of MIL-STD-171B(MR).
Gray #26251 of FED-STD-595. Surfaces mating
with RFI shielding to be free of paint.

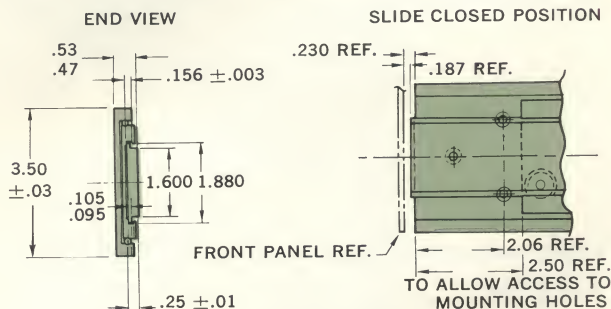
Accessories ordered with cabinet are installed at the factory when location is specified.

ORDERING INFORMATION

When ordering accessories, specify accessory by part name and part number. Also, identify the complete cabinet to which the accessory is to be attached.



1. **Material:** Channels 7075-T6 extruded aluminum per QQ-A-277.
Complete parts — CRES Type 302 or 303 per MIL-S-5059.
Ball bearings — CRES Type 440
2. **Finish:** Chassis Section — Anodized per MIL-A-8625, Type II dyed black. Dry lubricate per MIL-L-25504.
Cabinet Section — Anodized per MIL-A-8625, Type II non-dyed.
CRES Parts — passivate per MIL-S-5002.
3. Load capacity per pair: 150 lbs. (open position)
4. Slide locks in open position.
5. Slide is provided with quick disconnect on chassis section.
6. Zero Part No. or Government Part No. & Code No. marked per MIL-STD-130.



Part No.	NASA Part No.	Description	Part Description
3117-L	40MO6612-1	As shown	Slide assembly, left hand
3117-R	40MO6612-2	Opp. hand	Slide assembly, right hand
3117-97	40MO6612-3	As shown	Chassis section, left hand
3117-96	40MO6612-4	Opp. hand	Chassis section, right hand
3117-99	40MO6612-5	As shown	Cabinet section, left hand
3117-98	40MO6612-6	Opp. hand	Cabinet section, right hand

Telephone: (413) 267-5561 • TWX 710-354-1450 • Cable: ZEROCAN

